

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
15 September 2005 (15.09.2005)

PCT

(10) International Publication Number  
**WO 2005/086205 A1**

(51) International Patent Classification<sup>7</sup>: **H01J 47/06**

(21) International Application Number:  
**PCT/IB2004/000276**

(22) International Filing Date: 3 February 2004 (03.02.2004)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US): ORGANISATION EUROPEENNE POUR LA RECHERCHE NUCLEAIRE [CH/CII]; CERN, CH-1211 Geneva (CH).

(72) Inventors; and

(75) Inventors/Applicants (for US only): DICK, Louis [CH/CII]; 23, Avenue de Beau-Séjour, CH-1206 Geneva (CH). DE OLIVEIRA, Rui [FR/FR]; 98 Lot La Chalanderie, F-74800 Arenton (FR).

(74) Agent: DUCOR, Philippe; BMG Avocats, 8c Avenue De Champel, P.O. Box 385, CH-1211 Geneva (CH).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, IU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PII, PL, PT, RO, RU, SC, SD, SE, SG, SK, SI, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GII, GM, KE, LS, MW, MZ, SD, SI, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

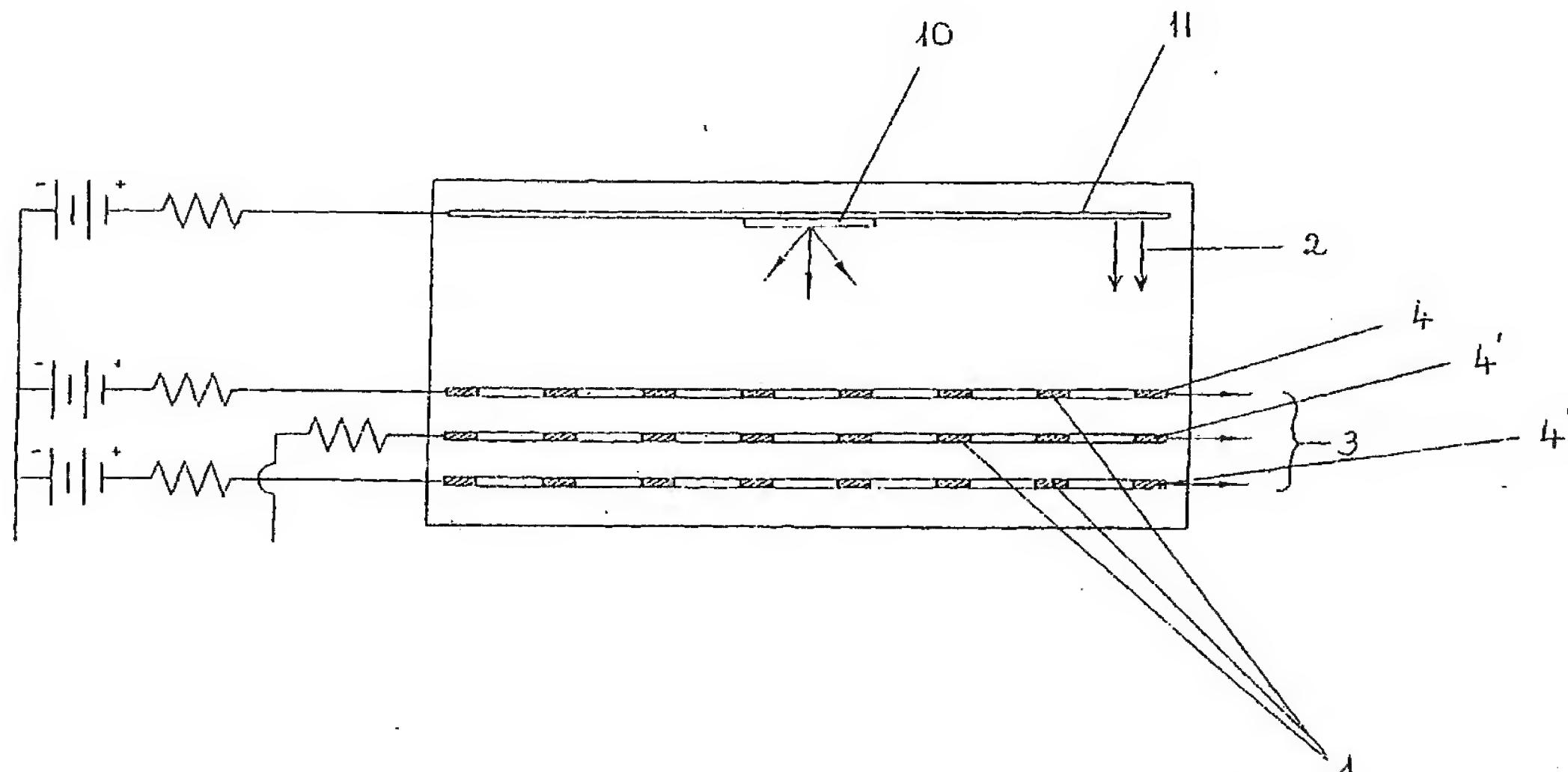
— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: RADIATION DETECTOR



(57) Abstract: The present invention provides a radiation detector in which primary electrons are released into a gas by ionizing radiation from a radiation source (10), and are caused to drift to read-out electrodes (1) by means of an electric field (2), said radiation detector comprising a matrix of electric field condensing areas, each of said condensing areas producing a local electric field gradient sufficient to generate in said gas an electron avalanche from one of said primary electrons so that said gas electron multiplier operates as an amplifier for said primary electrons, and a position-sensitive signal detector comprising read-out electrodes (1), said radiation detector being further characterized in that said matrix of electric field condensing areas and said signal detector are united in a same dual-purpose physical structure (3).

WO 2005/086205 A1